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BURMA

Pond Culture Training School:– A course on pond culture was completed and the passing out ceremony was held at Hlawga in September, 1955. Certificates of Competency were presented to twenty-nine students by U Ba Kyaw, Executive Officer, Fisheries Projects Division, A.R.D.C.

CEYLON

Acting Director of Fisheries:– Mr. H.C. Goonewardena, Government Agent, North Central Province, has been appointed Acting Director of Fisheries in addition to his duties as Rubber Commissioner. Mr. H. Jinadasa, former Acting Director, has been appointed Permanent Secretary to the Ministry of Education.

FAO Technical Assistance:– The practical experience of Dr. S.W. Ling who took up duties as FAO Fish Culturist from 1st February, 1955, are being profitably utilised to develop and extend fish culture in inland and brackish waters of Ceylon. The Superintendent of Fresh Water Fisheries of the Department of Fisheries has been detailed to understudy and take over the work once Dr. Ling completes his assignment. Demonstration ponds for fish rearing are being constructed in collaboration with the Agricultural Department in its experimental stations. With the assistance of Rural Development Societies and private individuals farming of fish is being popularised.

Mechanisation of Craft:– Under the Colombo Plan Aid 40 engines and 6 mechanised dories have been provided by Canada and arrangements have been made to allocate these engines to the local fishermen.

Marine Research:– With the help of Dr. J. C. Medcof, Fisheries Biologist from Canada, the Fisheries research programme has been put on proper lines. He initiated researches in various aspects of fisheries and entrusted them to departmental research officers. On his departure to Canada he left behind to his under-studies the task of continuing research on the lines laid down by him.

Housing for fishermen:– An attempt to improve the living conditions of the fishermen in Ceylon has been contemplated. The plan is to make available during the next five years a sum of six million rupees for housing projects. Priorities have already been drawn up and it is proposed to construct three thousand, two hundred and fifty houses during this period.

Joint Japan-Ceylon Fishing Company:– This company was formed as a result of the endeavour of Mr. Vincent Fernando, the President of the Ceylon Co-operative Fish Sales Union. This Company will carry out its fishing operations without interfering with the rights presently enjoyed by the indigenous fishermen or by the Department of Fisheries. It will sell its fish through the Co-operative Fish Sales Union which has already gathered experience in the marketing of fish. It is hoped that the formation of this Company will enable the Government to tap a new resource. The possibility of exporting frozen prawn to the U.S. market is also envisaged.

CAMBODIA

Technical Assistance:– Professor Louis Bérubé of the Ecole supérieure des Pécheries of the Laval University of Quebec is at present in Cambodia on a mission from the Government of Canada with a view to recommending Technical Assistance under the Colombo Plan. Professor Bérubé arrived in Phnom Penh on January 10, 1956, and will remain in Cambodia for approximately six months during his sabbatical leave.

INDIA

Success of Bull–trawling operations in India:– Bull–trawling conducted by the two fishing vessels, "Ashok" and "Pratap" of the Pilot Deep Sea Fishing Station, Bombay, has indicated its immense potentialities off the north west coast of India. These vessels were formerly conducting otter trawl nets but were altered for bull trawling operation at the end 1953. During the 1953–54 season, an average catch of nearly 1,350 lb of fish per hour was obtained during an experimental operation (about two and a half times that got by otter trawling). The quantity and percentage of commercially valuable fish caught by bull trawling also compared very favourably with that got by otter trawling. It may be noted that, in the month of February, 1955, on its fourth voyage, a record catch of 12 tons of fish was obtained in a single haul of one and a half hours' duration off Dwarka, just outside the Gulf of Kutch. The total catch on this voyage was 54 tons, and the average catch per hour of fishing about 2,058 lb (slightly less than a ton). This is stated to be the highest overall average obtained so far for trawling in Indian waters.

FAO Technical Assistance:– Mr. P.A Lusyne (Belgium) is at present on an assignment in India as FAO Training Centre Specialist in Fishing. He is studying fishing methods in several of the maritime States of India, and assisting the Central Government in organizing and conducting training centres for fishermen, where instruction will be given in fishing methods, gear construction, seamanship and the suitable basic training required by fishermen. Three training centres are to be established on a regional basis at Satpati (Bombay), Tuticorin and Cochin. Other centres will be established later. It is proposed to give training to 20 candidates in each centre and there will be two courses a year.

Obituary:– It is with much regret and deepest sympathy for Mrs. Hora and family that the Council announces the death of Dr. S.L. Hora, Director of the Zoological Survey of India, Calcutta, in early December, 1955. The Council has been privileged to have the closest co-operation and support of Dr. Hora since the Baguio meeting in 1948 at which the Council's constitution was established, when he represented India. He will be remembered as an international authority on Asian fisheries and one of the outstanding ichthyologists of our time, whose numerous publications have brought him world–wide reputation. Besides being a member of many learned societies, he acted as Fisheries Adviser to the Damodar Valley Corporation.

The last days of Dr. Hora were spent in completing, a "Handbook on Fish Culture in the Indo–Pacific Region", which FAO had commissioned Dr. Hora to prepare as a practical guide to fish culturalists and fishery extension workers in the under–developed countries.

INDONESIA

Long–line tuna fishing makes a good start for Indonesian fishing industry:– Indonesia's first diesel long-line tuna vessel completed six training voyages during the Djakarta area fishing season. The 100–ton, 27 meter *Bima* is the first of four vessels which will form the nucleus of Indonesia's new long-line industry.

Long-line fishing has been successfully used for years by the Japanese in the waters surrounding Indonesia. With the *Bima* and her sister ships, Indonesia can for the first time exploit these waters which are one of the world's richest sources for deep sea fishes and potentially the largest new source of protein available to Indonesia.

The tuna long-line fishing programme is being carried out by the Indonesian Sea Fisheries Service with assistance from the U.S.I.C.A. The Sea Fisheries Service has provided the Rp. 800,000 vessel. ICA has provided an adviser and around $9,000 of fishing equipment.

During the *Bima's* six voyages south of the Sunda Strait, Ralph L. Johnson, ICA long-line technician, and Sudarsono of the Sea Fisheries Institute, instructed the 17-man crew in long-line fishing. Incidental to learning, the crew caught 6,820 kg of tuna and shark which were sold at Pasar Ikan for Rp. 26,485.

Developments of the long-line industry is expected to contribute substantially to the Sea Fisheries goal of doubling its present yearly catch.

U.S.I.C.A. Technical Assistance:— Mr. K. Brown, U.S.I.C.A. Trawl Fishery expert, who has been appointed to the Indonesian Government for 2 years, is actively engaged in the development of the Indonesian shrimp fisheries. A native of Florida with much experience in shrimp fishing and in construction and maintenance of this type of vessel, he has begun his work with shrimp trawl experiments in the fishing area off South East Kalimantan (Borneo).

Surface Salinity Distribution Charts: The Laboratory of Marine Research in Djakarta is publishing monthly charts of the surface salinity distribution in the Indonesian and surrounding waters beginning with January, 1955. They cover the area from *20°N* to *15°S* and *90°E* to *143°E*. They will be issued about six months after the month of sampling. It is planned to publish charts from March, 1953 to December, 1954.

NEPAL

FAO Technical Assistance:— According to a Report by Mr. G. Knutsson, FAO Agricultural Technical Assistance Expert, the rivers Trisuli, Lidhu and Tadikhola and the lakes of Nepal hold some species of fish which, however, could be augmented. Attention is drawn to the scope of fish culture in ponds and rice fields. The reluctance on the part of Nepalese to exploit their cultivable waters is attributed partly to the fact that fish ponds in the past were often located on religious sites.

Differences in temperature and substratum have been observed among the Nepalese rivers and detailed studies of these are, it is stated, likely to be valuable in promoting acquiculture and fisheries in Nepal.

NETHERLANDS NEW GUINEA

Officer's Movements:— Mr. D.C. Zwollo, Chief of the Fisheries Division, Department of Agriculture and Fisheries, Hollandia, Netherlands New Guinea, has completed his tour of duty and returned to the Netherlands.

PAKISTAN

Directorate of Fisheries, East Bengal :– This office, which was merged with the Directorate of Extension and Rural Development in 1954, has been revived, with the headquarters at the East Bengal Secretariat Building, Dacca, East Pakistan.

PHILIPPINES

Fisheries Development Project :– The Fisheries Development Project of the Bureau of Fisheries, under the combined aid of the International Cooperation Administration (U.S.A.) – National Economic Council (Philippines), is now underway. The project consists of an Inland Fisheries Programme and a Marine Fisheries Programme. In the Inland Fisheries Programme, six demonstration fish farms will be maintained. In the Marine Fisheries Programme, the M/V "David Starr Jordan", a government fishing boat, is assigned as demonstration and exploratory fishing vessel. The fishing vessel will be operated in connection with the introduction of Japanese fish capture methods. A Japanese fishing gear expert is being recruited by FAO under the Expanded Technical Assistance Programme.

Under the I.C.A. project ten technical men of the Bureau of Fisheries will be sent to different countries in the Indo-Pacific region for study and observation. Messrs. J. I. Sulit, S. B. Rasalan, and D. M. Gracia, Chemist, Fishery Technologist and Assistant Fishery Technologist, respectively, visited Thailand and Japan under this programme.

Stocking of inland lakes and streams with suitable species will be one of the major aspects of the project. Six pick-up jeeps have been acquired for this purpose.

Officer's Movements:– Dr. D.V. Villadolid, Director of Fisheries, has retired after 45 years of Government Service. He has been replaced by by Mr. H. R. Montalban as Officer-in-Charge of the Bureau of Fisheries while Mr. G.J. Blanco has been designated Acting Chief of the Division of Fish Culture and Fishery Biology.

SARAWAK

Fisheries :– Fish forms a staple food for many of the country's inhabitants, and both marine and freshwater fisheries are of considerable importance. Marine fishing is the main source of supply, most of the catch being obtained from the shallow, coastal waters by Malay, Melanau and Chinese fishermen. Production, however, is insufficient, and dried, salted and canned fish is imported.

The fishing methods used along the coasts may appear crude to the casual observer, but anyone acquainted with sea fishing is soon impressed by their simplicity, ingenuity, and suitability for local conditions. The fishermen display considerable skill and a high standard of seamanship. A survey of local sea fisheries has been completed, and the results confirm that there are not the concentrations of fish in Sarawak waters to justify large scale fishing. Nor have indications yet been obtained of any large fish concentrations worth serious attention in the deeper waters further

off-shore. Experiments with modern temperate water methods have also suggested that these were unlikely to be successful in the local waters. However, there seems to be scope for some mechanisation of existing local methods, and this might lead to self-sufficiency in home markets.

Improvements in the transport and marketing systems are possible and it is hoped to devote more attention in future to these aspects of the industry perhaps as subjects for co-operative development.

Conditions are generally suitable for freshwater fish farming and some Chinese farmers successfully obtain large yields of fish, but unfortunately some of the most important species do not breed in Sarawak and fry have to be imported from China. Recent investigations suggest, however, that the rate of breeding and of growth of small, edible, indigenous fish in the smaller streams might be increased.

THAILAND

Fish Export :– The Department of Fisheries has been authorized by the Ministry of Agriculture to inspect and issue certificates on exported salted Rastrelliger according to the rules approved by the salted fish exporters and the Minister of Agriculture.

Chanos cultivation :– Fifty two owners of prawn farms with a total area of 2,500 rai (1,000 acres) in the province of Chantaburi, East of the Gulf of Thailand, have agreed to co-operate with the Department of Fisheries on a progamme of Chanos cultivation. The Department will undertake the exploration of the Chanos fry ground, and the establishing of field nursery ponds for free distribution of the fry.

School for Sons of Fishermen :– A budget item has been approved by the Government for the organization of a School for Sons of Fishermen at the Ban Pae Marine Station as from January, 1956. The course will be for one year and the number of participants 35.

Fish fry:– At the request of the Government of Laos, the Officer–in–Charge of Nongharn Sakolnakorn Fisheries Station transported in August 1955, 10,000 *Tilapia mossambica* about 5 cm in length by truck to the Laos officials at Mukdaharn District on the Mekhong River.

On September 2, 1955, the Department of Fisheries received by air a consignment of 25 fingerlings of *Tilapia melanopleura* arranged by FAO from the Belgian Congo through the good offices of the Fish Culture Research Laboratory of the Belgian Ministry of Fisheries and Forestry.

Fish landings:– The "poh" fishermen have been affected on account of the fluctuating run of Rastrelliger in the Gulf of Thailand as the fish did not come to shallow water where the "poh" were. The Tangke Fisheries (purse–seine), on the contrary, were successful as the fishing could be done in depths of 20 metres.

Small jellyfish, locally called Hua Waen and Chao Tan, appeared in large numbers and the phenomenon is believed by the local fishermen to be a sign of poor fishing for Rastrelliger.

Oceanographic Investigations :– Two German–built vessels of 240 HP and 2,800 metres overall length have been made available by the Royal Navy Hydrographic Department for hydrographic studies in the Gulf of Thailand. The Fisheries Department is especially interested in the marine biological aspects.

TAIWAN

Chanos fry:– Reports from Taiwan on the importation of Chanos fry initiated under technical assistance and arranged by the Thai Fisheries Department in 1954 for experimental purposes are encouraging. These fry were reared in two concrete ponds at the Taoyuen Fish Hatchery until September 29, 1954, and were then removed to a hot spring near Ilan.

The results indicate that (1) Chanos fry could be transported from Bangkok to Taipei by air with very low mortality; (2) Thai Chanos fry are able to adapt and grow well in Taiwan waters and (3) Chanos fry are able to grow well through the cold winter months in water mixed with hot spring water and fed entirely with rice bran.

VIET NAM

Fish Culture Publications:– The immediate programme of inland fisheries work in Viet Nam attempts to popularise the culture of fish, especially Tilapia in order to increase the protein food supply.

Three publications related to the subject have been issued in Vietnamese from 1953 to 1955, entitled "Bulletin for fish farmers", "Tilapia – How to culture them in ponds, canals and paddy–fields" and "Would you like to have all the fish you can eat all your life at no cost whatever?".

FOOD AND AGRICULTURE ORGANIZATION

The Third FAO/ETAP International Inland Fisheries Training Centre:– The six weeks' training course in Inland Fisheries conducted at Bogor, Indonesia, was successfully completed on December 10, 1955, when 15 overseas participants from 8 Member Governments in the Indo–Pacific area together with 5 Indonesian participants received certificates from Mr. H. Saanin, Chief of the Laboratory for Inland Fisheries, Bogor, who acted at the same time as the Director of the Training Centre. He was assisted by Mr. W.H. Schuster, FAO fish culture consultant, as Co-Director.

In addition to excursions to East, Central and West Java, lectures delivered during the course covered the following subjects:– appraisal of inland fisheries resources, economic and social considerations, investigations in open systems, management of fish stocks in open systems, culture and management of fish stocks in ponds and other closed systems, organization of the administration of inland fisheries etc.

Discussions in which the participants took an active part raising issues of their respective countries and contributing considerably to the solution of one another's problems formed a special feature of the training course.

FAO Headquarters staff's visit:– Mr. F.E. Popper, Chief of the Economics Branch of the Fisheries Division, FAO, left Rome in February on a Far East tour through the Indo-Pacific countries. He attended meetings of ECAFE at Bangalore, India, and while in Tokyo, took part in the Regional Conference of Representatives of International Commissions of UNESCO in Asia. During his tour of Thailand, Singapore, Malaya and Hong Kong he held discussions with government officials, FAO representatives and various other persons and organizations.

INDO-PACIFIC FISHERIES COUNCIL

IPFC Secretariat :– Dr. C. Miles returned at the end of January after a three weeks visit to Viet Nam as fisheries consultant to the U.N. Vietnamese Mission.

Dr. T. J. Job, returned on March 12, after home leave and attendance at the 12th Session of the Economic Commission for Asia and the Far East at Bangalore.

Miss A. Jiannee returned in December, after completing her assignment as Administrative Officer to the Third FAO/ETAP International Inland Fisheries Training Centre, Bogor, Indonesia.

IPFC 6th Session :– From the 30th September to the 14th October, 1955, the 6th Session of the Indo-Pacific Fisheries Council took place at Tokyo, Japan. The 16 Member Governments of the Council participated in the discussions, while Portugal, New Zealand and Iran were represented by observers, as were the Commission International pour l'Exploration Scientifique de la Mer Mediterranée, Pacific Science Council, South Pacific Commission, UNESCO and the World Meteorological Organization.

Dr. N.K. Panikkar (India) was elected the new Chairman while the Vice-Chairmanship went to Mr. D.J. Rochford (Australia). The Chairmen of Technical Committees I and II were, respectively, Dr. K. Kuronuma (Japan) and Dr. M. R. Qureshi (Pakistan).

In April/May, 1957, at the invitation of the Government of the Republic of Indonesia the Council will hold its 7th Session at Bandoeng, Indonesia, to review the results of the various programmes of the Technical Committees and to discuss further policies aimed at the best possible utilization of the aquatic resources of the region.

GENERAL

Meetings of International Bodies of interest to Fisheries

July 27 – August 7, 1956 – Thirteenth International Limnological Congress. At Helsinki, Finland.

Organizer – Dr. H. Luther, 13th International Limnological Congress, Snellmansgatan 16c, 36, Helsinki, Finland.

September 24 – 28, 1956 – Third International Congress on Canned Foods. At Rome.

Organizer – M.A. Barillet, Comite International Permanent de la Conserve, 3 Rue de Logelbach, Paris 17e., France.

CURRENT READING

(The undermentioned papers of interest to the Council's working groups have come to the attention of the Secretariat and should be added to the subject bibliographies. This section is printed on one side only to facilitate cutting and pasting on library cards.)

"Species of Tilapia in East African Dams, with a key for their Identification", by R. H. Lowe, 1955. *East African Agri. Jour.* 20 (4).

There are more than a dozen species of Tilapia in dams and ponds in various parts of East Africa. The culture of these fish is still carried out rather empirically; until more is known of the behaviour of the different species it is highly advisable that new dams should only be stocked with species already in the drainage area. A possible exception to this recommendation might, however, be made in favour of the easily recognizable weed-eating species *T. zillii* and *T. melanopleura*. In all cases when new dams or ponds are stocked records should be kept of the origin of the Tilapia used.

"The fecundity of Tilapia species", by R.H. Lowe, 1955. *East African Agri. Jour.* 21 (1).

Fecundity has been defined as the number of young produced by an individual during its lifetime. Factors influencing fecundity are: length of breeding season, frequency of spawning during a breeding season, the number of eggs laid at a spawning, and the care taken of eggs before and after hatching. According to whether they care for their young outside or inside the mouth, Tilapia can be classified as "guarders" or "brooders". Generally, guarders produce many small eggs and brooders fewer, large ones. Only four species are known to be guarders: *T. Sparrmani*, *T. guinasana*, *T. Melanopleura* and *T. zillii* The remainder are brooders. Due to the different breeding biology of the two groups, the fecundity of guarders depends upon the number of paired fishes, whereas in brooders it is determined by the number of ripe females. In the genus Tilapia, evolution appears to have been towards a reduction in the number of eggs produced, and towards the development of a brooding habit.

"On the Processes and Ridges on the Pectoral Fin Rays of the Males of *Hypophthalmichthys molitrix* (C. & V.) and *Aristichthys nobilis* (Richard)" by Yun–an Tang, 1954. *Fish Culture Report* No. 1. Taiwan Fisheries Research Institute.

The processes on the fin-rays of *H. molitrix* and the ridges on the fin-rays of *A. nobilis* are found in the males. Both processes and ridges are only present on the 1st to 7th rays of the pectoral fin. They can be found even in the immature fish and there are no seasonal changes, but they grow larger with age. Every process and ridge has a large bony core which arises from the lepidotrichia of the outside row of the fin and is covered by the epidermis.

"Effect of Soil-Fertilization and Water-Fertilization on the Production of Plankton, Bottom Organisms and Goldfish in Ponds", by Yun–an Tang, 1954. *Fish Culture Report* No. 2. Taiwan Fisheries Research Institute.

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A comparison of the effect of the application of 1,000 pounds commercial 6-8-4 inorganic fertilizer plus 50 pounds ammonium nitrate per acre applied to the water in ponds in five equal applications approximately 2 to 3 weeks apart and the application of an equal amount of fertilizer to the soil prior to flooding the ponds was made in four $\frac{1}{4}$-acre ponds during a 4-month experiment from April to August.

A heavy bloom of plankton was first found in the soil-fertilization ponds within one week after the fertilizer was applied. This first bloom was much earlier than that in the water-fertilization ponds, in which the first plankton bloom was found at 2 to 3 weeks after the first application. This resulted in a complete food chain in the soil-fertilization ponds being built up earlier than that in the water-fertilization ponds.

After 6 to 8 weeks, the plankton production in the soil-fertilization ponds was less than that in the ponds receiving periodic fertilization of the water. The former continued to decrease and the latter to increase until the end of the 4-month experiment.

The variations in the production of bottom organisms somewhat corresponded to the production of plankton. Chironomidae and Chaoborinae were the most abundant two groups of organisms in all four ponds. The former produced approximately 80 % of the total weight from the areas 2 to 3 feet deep and the latter produced approximately 85 % from the 4- to 5- foot depths.

The production of goldfish in a 4-month experiment in the soil-fertilization ponds was slightly greater than that in the ponds receiving periodic water-fertilization.

"Preliminary Experiments in the Use of *Chlorella* as Human Food," by Yuji Morimura and Nobuko Tamiya, 1954. *Food Technology* 8, 179-182. Reprinted in *Studies from the Tokugawa Institute*, 7 (2), 1954.

Dried powder of *Chlorella* cells shows a taste and flavor similar to those of powdered green tea and powdered dry "aonori", a seaweed (*Enteromorpha compressa*) commonly used as a seasoning in Japanese cookery. It was found that the algal powder can be added to various kinds of food, both Western and Japanese, giving them an agreeable taste and appearance and increasing their protein, fat, and vitamin content. An attempt at extracting a "tofu"-like material from *Chorella* cells failed, but by hydrolysis of algal powder a solution was obtained which may be used as a substitute for soya sauce.

"Fish Fauna of North Borneo," by R. F. Inger, 1955. "*Fieldiana*: *Zoology*", Chicago Natural History Museum, Vol. 37.

Seventy-one species are recorded from the Kretam Kechil drainage of Northeast Borneo. Forty-four of these were found only in saline waters. The twenty-seven species collected in fresh-water include fifteen belonging to such marine groups as the Synentognathi, Percoidea, Gobioidae, and Plectognathi. The small number (eight) of fresh-water Ostariophysi probably reflects, at least in part, the shortness of the drainage (approximately 50 kilometres).

At the sources of the drainage, in the zone of isolated and semi-isolated pools, only Betta occurs. Downstream, where the streams are permanent and consist of continuous bodies of water, Ostariophysi form the bulk of the fauna. Gobies, eleotrids, puffers (*Tetraodon*), and half-beaks (*Dermogenys*) become abundant in fresh-water near the tidal limits. Within the long zone of brackish water, isospondyls, percoids, and percesocids dominate the fauna.

A large proportion of the fresh-water fishes feeds principally on terrestrial insects that fall in the streams. In brackish water, the food base of the fish community seems to be crustaceans of the family Palaemonidae.

"Algal Culture from Laboratory to Pilot Plant", by J. S. Burlew, 1953. *Carnegie Institute of Washington publication*, No. 600. Opens with a chapter on the current status of large-scale culture of algae followed by one on the need for a new source of food and others on the biology, growth and use of algae with descriptions of pilot plant experiments and a bibliography.

"The dangers of wildlife introductions", by J.D. Andrews, 1953. *Garden Gossip*, March, (Contrib. Virginia Fish. Lab. No. 43).

"Symposium on Hilsa", by various authors, 1954. *Journal of the Asiatic Society*, Science, *20* (1).

"A viscometric study on the weakening of cotton netting cords in the sea", by A. Kishimoto, 1955. *Bull. Jap. Soc. Sci. Fish.*, *20* (9).

"The tensile strength of Kurehalon netting cords of various twists", by T. Koizumi, 1955. *Ibid.*

"On mass-growth of the prawn, *Penaeus japonicus* Bate", by I. Kubo, 1955. *Bull. Jap. Soc. Sci. Fish.*, *20* (10).

"Experiments on the effects of various kinds and combinations of fertilizers on the reproduction of *Cyclops hyalinus*", by S. Huzita, 1955. *Ibid.*

"Studies on the radioactive material in the radiologically contaminated fishes caught at the Pacific Ocean in 1954", by M. Saiki, S. Okano and T. Mori, 1955. *Ibid.*

"Studies on electrical sterilization—VIII. Thermal bactericidal effect of certain disinfectants by two steps gradual heat sterilizalion", by W. Simidu & S. Ueno, 1955. *Ibid.*

"Limnological studies on diurnal fluctuations in shallow ponds in Indonesia", by K.F. Vaas & M. Sachlan, 1955. *Proc. Internat. Assoc. Theor. Appl. Limn.*, Sweden, *12*.

"Fish Farming", by W.J.A. Payne, R.K. Naidu, V.E. Sills and S. Holmes, 1954. *Agr. J.*, Fiji 25 (3-4).

"Possibility of using *Tilapia mossambica* as human food", by B. Holmes, 1954. *Ibid.*

"Black Grub infection in *Catla catla*", by F.G. Abraham and M. Anantaraman, 1955. *Nature*, Vol. 175 (4446), p. 128.

"Comparative ecology and physiology of the crayfish *Orconectes propinquus and Cambarus fodiens*", by R.V. Bovbjerg, 1952. *Physiol. Zool.*, Vol. 25, p. 34-55.

"The effects of temperature upon tropical marine animals", by A.G. Mayer, 1914.

Carnegie Inst. Wash. Dept. Mar. Biol. Tortugas Lab. Vol. 6, p. 1-24.

"A survey of fish breeding research during the period July 1951—Dec. 1953", by K. Reich, 1954. *Bamidgeh Bull. Fishculture in Israel, 6* (2).

"Mixed nursing as a means of raising pond productivity", by N. Palewsky and S. Sarig, 1954. *Ibid.*

"Method of organising the spawning and storage of fry", by N. Palewsky, 1954. *Ibid.*

"Birds in fish ponds", by A. Alon, 1954. *Ibid.*

"Longline Fishing for Deep-swimming Tunas in the Central Pacific, Aug.-Nov. 1952", by G.I. Murphy and R.S. Shomura, 1955. FWS *Sp. Sci. Rep.*, Fisheries, No. 137.

"Long Term Changes in Hydrographic Conditions and Correspondiug Changes in the Abundance of Marine Animals", by W. Templeman and A.M. Fleming. Intern. Comm. Northwest Atlantic Fish. *Annual Proceedings, 3* (1952-53), part 5.

"Breeding of Mother Carp in 1951/52", by A. Wirszubski and P. Ivri, 1954. *Bamidgeh Bull. Fishculture in Israel, 6* (1).

"Methods of Exterminating Wild Fish in Ponds", by S. Sarig, 1954. *Ibid.*

"Fish Culture the World Over", by S. Sarig, 1954. *Ibid.*

"Onshore Hydrological Investigations in Eastern and South—western Australia", 1940—1953. Oceanographical Station List of Investigations made by the Division of Fisheries, Commonwealth Scientific and Industrial Research Organization, Australia, Vols. 4, 14 and 18.

"Determining the Influence of Various Fertilizers in fish Ponds", by S. Sarig, 1955. *Bamidgeh Bull. Fishculture in Israel, 7* (1).

"Filamentous Algae in Fish Ponds", by A. Yashouv. *Ibid.*

"Technical Improvements in Fish Ponds", by J. Prushinin. *Ibid.*

"How to Raise Yields in Carp Ponds", by A. Yashouv. *Ibid.*

"A Comparative Study of Longline Baits". 1955, FWS *Sp. Sci. Rep.* Fisheries, No. 151.

"Fish and Fisheries of the Mahanadi in Relation to the Hirakud Dam", by T.J. Job, A. David and K.N. Das, 1955. *Indian Journal of Fisheries,* 2 (1): 1—36.

"Notes on the Bionomics and Fishery of the Prawn *Metapenaeus dobsoni* Miers on the South—West Coast of India", by M. Krishna Menon, 1955. *Indian Journal of Fisheries,* 2 (1).

"Local Common Names of Indonesian Fishes", by W.H. Schuster and R. Rustami Djajadiredja, 1952. The Ministry of Agriculture of Indonesia, Laboratory for Inland Fisheries.

"On the occurrence of Metacercariae cysts of a Diplostome (Trematoda) in Freshwater Fishes", by P.N. Ganapati and K. Hanumantha Rao, 1955. *Proceedings of the Forty-second Session of Indian Science Congress Association,* Part III Abstracts.

"Maturation in *Parapeneopsis stylifera* (Crustacea)", by V.B. Tembe and (Miss) F. S. Shaikhmahmud, 1955. *Ibid.*

"Hydrobiology and Fisheries of the Corteliar Estuary, Ennur, near Madras in 1953—54". by P.I. Chacko, 1955. *Ibid.*

"Uniform System of Shore Marks for Inland Waterways", report by the Secretariat, 1955. ECAFE/TRANS/Sub. 3/28.

"A Field–Key to the Identification of Fishes: 2 Elasmobranchii (Batoidei)", by M. Rahimullah Qureshi, 1953. *Agriculture*, Pakistan, 4 (3&4).

"The Food of the Mackerel taken near Oshima Island in 1953", by H. Takano, 1955. *Bulletin of Tokai Regional Fisheries Research Laboratory*, Fisheries Agency, No. 10 (Contribution B).

"Nitrogen Fixation by Blue-Green Algae" by A. Watanabe, 1954. Intern. Rice Comm. *News Letter*, No. 12.

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